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WO 00/38950 A3

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(72) Erfinder; und

(21) Internationales Aktenzeichen: PCT/EP99/10354

(75) Erfinder/Anmelder (nur für US): HEINZ, Jürgen, A.
[DE/DE]; Schindstrasse 2, D-97959 Assamstadt (DE).

(22) Internationales Anmeldedatum:
23. Dezember 1999 (23.12.1999)

(74) Anwalt: PFENNING MEINIG & PARTNER GBR;
Kurfürstendamm 170, D-10707 Berlin (DE).

(25) Einreichungssprache: Deutsch

(81) Bestimmungsstaaten (national): AE, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, DK, EE, ES,
FI, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,
MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA,
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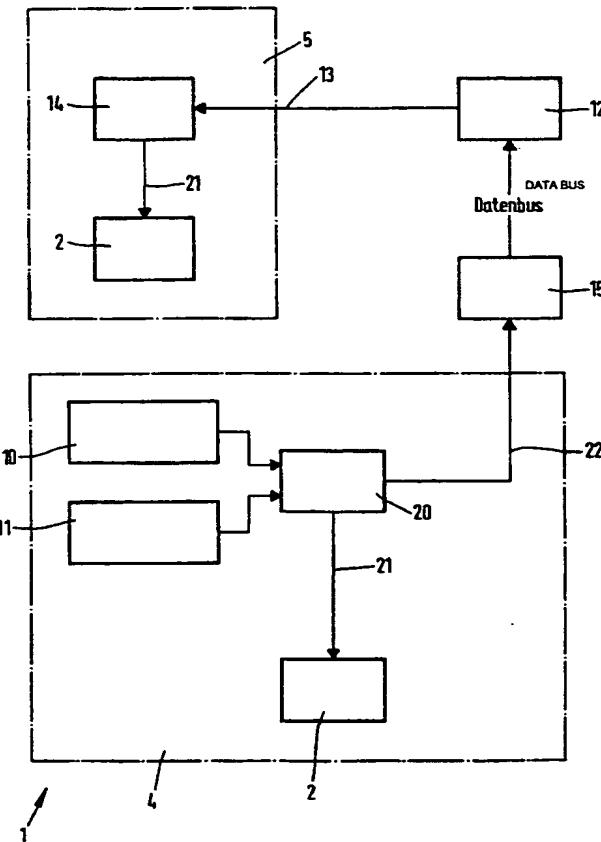
(30) Angaben zur Priorität:
198 60 941.8 29. Dezember 1998 (29.12.1998) DE

(71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme von
US): MAGNA REFLEX HOLDING GMBH [DE/DE];
Industriestrasse 3, D-97959 Assamstadt (DE).

[Fortsetzung auf der nächsten Seite]

(54) Title: VEHICLE REARVIEW SYSTEM WITH ELECTROCHROME MIRROR

(54) Bezeichnung: FAHRZEUGRÜCKBLICKSYSTEM MIT ELEKTROCHROMEM SPIEGEL



(57) Abstract: The invention relates to a vehicle rearview system (1) comprising at least one rearview mirror unit fitted with an electrochrome mirror (2), a control device and a vehicle voltage supply device. The control device is electrically connected to the vehicle voltage supply device for its voltage supply and to the electrochrome mirror so as to control the reflection characteristics of said mirror in accordance with a control voltage. The control device comprises a flat heating resistor (3) to dissipate the heat resulting from electric power loss.

(57) Zusammenfassung: Es wird ein Fahrzeugrückblicksystem (1) mit mindestens einer mit einem elektrochromen Spiegel (2) versehenen Rückspiegeleinheit, einer Steuereinrichtung sowie einer Bordspannungsversorgungseinrichtung vorgeschlagen. Die Steuereinrichtung ist zu ihrer Spannungsversorgung mit der Bordspannungsversorgungseinrichtung und mit dem elektrochromen Spiegel zur Steueung, dessen Reflexionseigenschaften in Abhängigkeit einer Steuerspannung elektrisch verbunden. Die Steuereinrichtung weist einen flächenhaften Heizwiderstand (3) zur Abführung von durch elektrische Verlustleistung entstehender Wärme auf.

WO 00/38950 A3



(84) **Bestimmungsstaaten (regional):** ARIPO-Patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), eurasisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI-Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(88) **Veröffentlichungsdatum des internationalen Recherchenberichts:** 27. September 2001

Zur Erklärung der Zweibuchstaben-Codes, und der anderen Abkürzungen wird auf die Erklärungen ("*Guidance Notes on Codes and Abbreviations*") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

Veröffentlicht:

— mit internationalem Recherchenbericht

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/10354

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B60R1/08 B60R1/06

RECEIVED

OCT 30 2001

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60R H05B

TECH CENTER 1600/2900

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 808 777 A (O'FARRELL DESMOND J ET AL) 15 September 1998 (1998-09-15) column 3, line 54 - line 60 column 5, line 11 - line 15 figures 1-7 ---	1-22
A	EP 0 820 901 A (DONNELLY CORP) 28 January 1998 (1998-01-28) column 12, line 24 - line 45 figure 21 ---	1-22
A	WO 95 31084 A (NEGAWATT GMBH ;MARAVIC MONIKA (CH); MARAVIC DUSKO (CH)) 16 November 1995 (1995-11-16) page 1, line 12 - line 20 page 3, line 7 - line 10 page 4, line 17 - line 28 figure 1 ---	1-12
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

13 April 2000

Date of mailing of the international search report

19.04.00

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Billen, K

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/10354

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 010, no. 223 (P-483), 5 August 1986 (1986-08-05) & JP 61 059317 A (NIPPON KOGAKU KK), 26 March 1986 (1986-03-26) abstract figures 1,2 -----	13-22

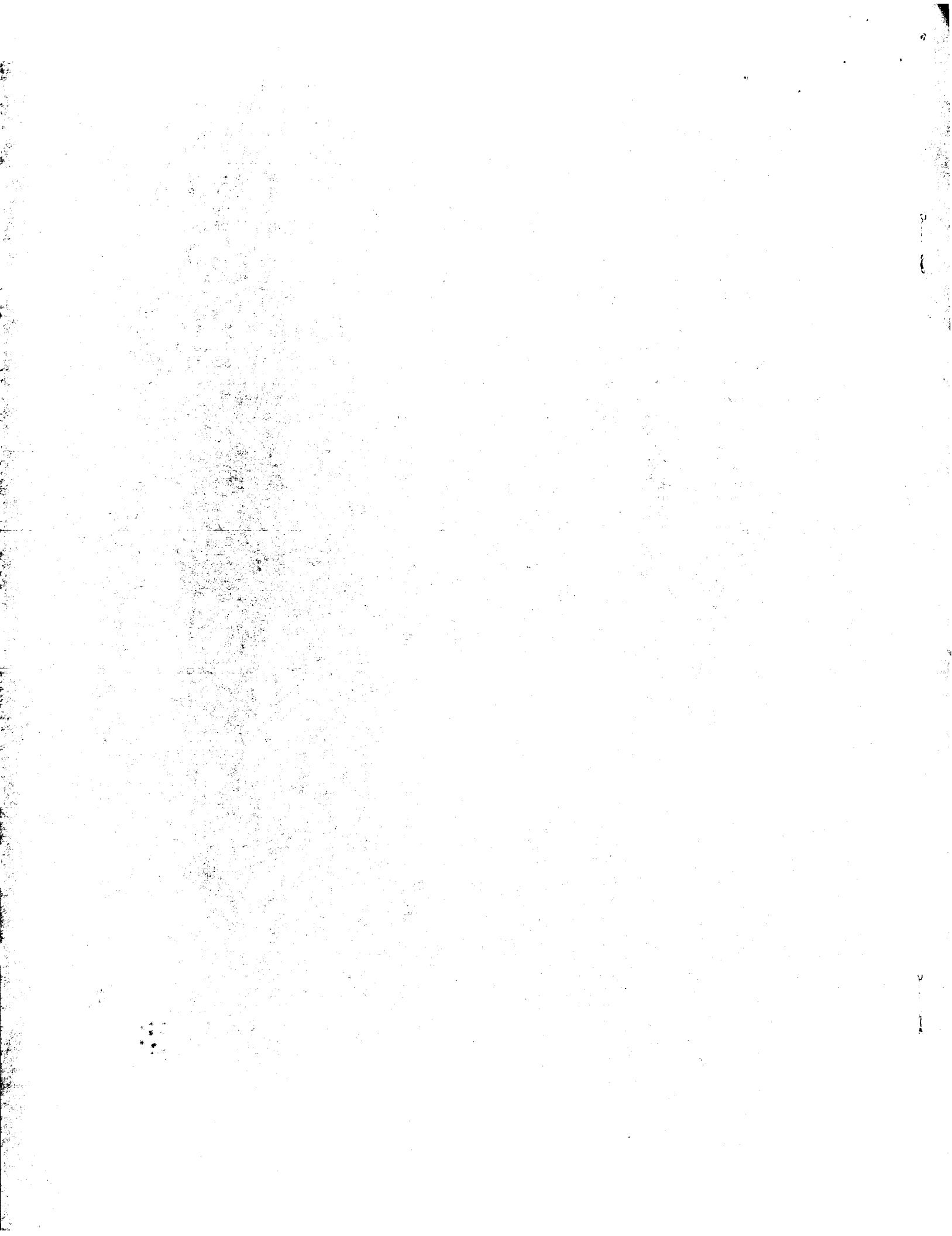
INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/10354

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
US 5808777 A	15-09-1998		US 5610756 A US 5446576 A US 5151824 A EP 0496155 A IE 913794 A JP 4292232 A	11-03-1997 29-08-1995 29-09-1992 29-07-1992 03-06-1992 16-10-1992
EP 0820901 A	28-01-1998		US 5823654 A US 6176602 B US 6149287 A	20-10-1998 23-01-2001 21-11-2000
WO 9531084 A	16-11-1995		AU 2612495 A	29-11-1995
JP 61059317 A	26-03-1986		NONE	



INTERNATIONALER RECHERCHENBERICHT

Inter. nationales Aktenzeichen

PCT/EP 99/10354

A. KLASIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
IPK 7 B60R1/08 B60R1/06

Nach der Internationalen Patentklassifikation (IPK) oder nach der nationalen Klassifikation und der IPK

B. RECHERCHIERTE GEBIETE

Recherchierter Mindestprüfstoff (Klassifikationssystem und Klassifikationssymbole)

IPK 7 B60R H05B

Recherchierte aber nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Gebiete fallen

Während der internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	US 5 808 777 A (O'FARRELL DESMOND J ET AL) 15. September 1998 (1998-09-15) Spalte 3, Zeile 54 – Zeile 60 Spalte 5, Zeile 11 – Zeile 15 Abbildung 1-7	1-22
A	EP 0 820 901 A (DONNELLY CORP) 28. Januar 1998 (1998-01-28) Spalte 12, Zeile 24 – Zeile 45 Abbildung 21	1-22
A	WO 95 31084 A (NEGAWATT GMBH ; MARAVIC MONIKA (CH); MARAVIC DUSKO (CH)) 16. November 1995 (1995-11-16) Seite 1, Zeile 12 – Zeile 20 Seite 3, Zeile 7 – Zeile 10 Seite 4, Zeile 17 – Zeile 28 Abbildung 1	1-12
		-/-

Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen

Siehe Anhang Patentfamilie

* Besondere Kategorien von angegebenen Veröffentlichungen :

"A" Veröffentlichung, die den allgemeinen Stand der Technik definiert, aber nicht als besonders bedeutsam anzusehen ist

"E" älteres Dokument, das jedoch erst am oder nach dem internationalen Anmeldedatum veröffentlicht worden ist

"L" Veröffentlichung, die geeignet ist, einen Prioritätsanspruch zweifelhaft erscheinen zu lassen, oder durch die das Veröffentlichungsdatum einer anderen im Recherchenbericht genannten Veröffentlichung belegt werden soll oder die aus einem anderen besonderen Grund angegeben ist (wie ausgeführt)

"O" Veröffentlichung, die sich auf eine mündliche Offenbarung, eine Benutzung, eine Ausstellung oder andere Maßnahmen bezieht

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"X" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann allein aufgrund dieser Veröffentlichung nicht als neu oder auf erforderlicher Tätigkeit beruhend betrachtet werden

"Y" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann nicht als auf erforderlicher Tätigkeit beruhend betrachtet werden, wenn die Veröffentlichung mit einer oder mehreren anderen Veröffentlichungen dieser Kategorie in Verbindung gebracht wird und diese Verbindung für einen Fachmann naheliegend ist

"&" Veröffentlichung, die Mitglied derselben Patentfamilie ist

Datum des Abschlusses der internationalen Recherche

Absendedatum des internationalen Recherchenberichts

13. April 2000

19/04/2000

Name und Postanschrift der Internationalen Recherchenbehörde
Europäisches Patentamt, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Bevollmächtigter Bediensteter

Billen, K

INTERNATIONALER RECHERCHENBERICHT

Inte. nationales Aktenzeichen

PCT/EP 99/10354

C.(Fortsetzung) ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	PATENT ABSTRACTS OF JAPAN vol. 010, no. 223 (P-483), 5. August 1986 (1986-08-05) & JP 61 059317 A (NIPPON KOGAKU KK), 26. März 1986 (1986-03-26) Zusammenfassung Abbildungen 1,2 -----	13-22

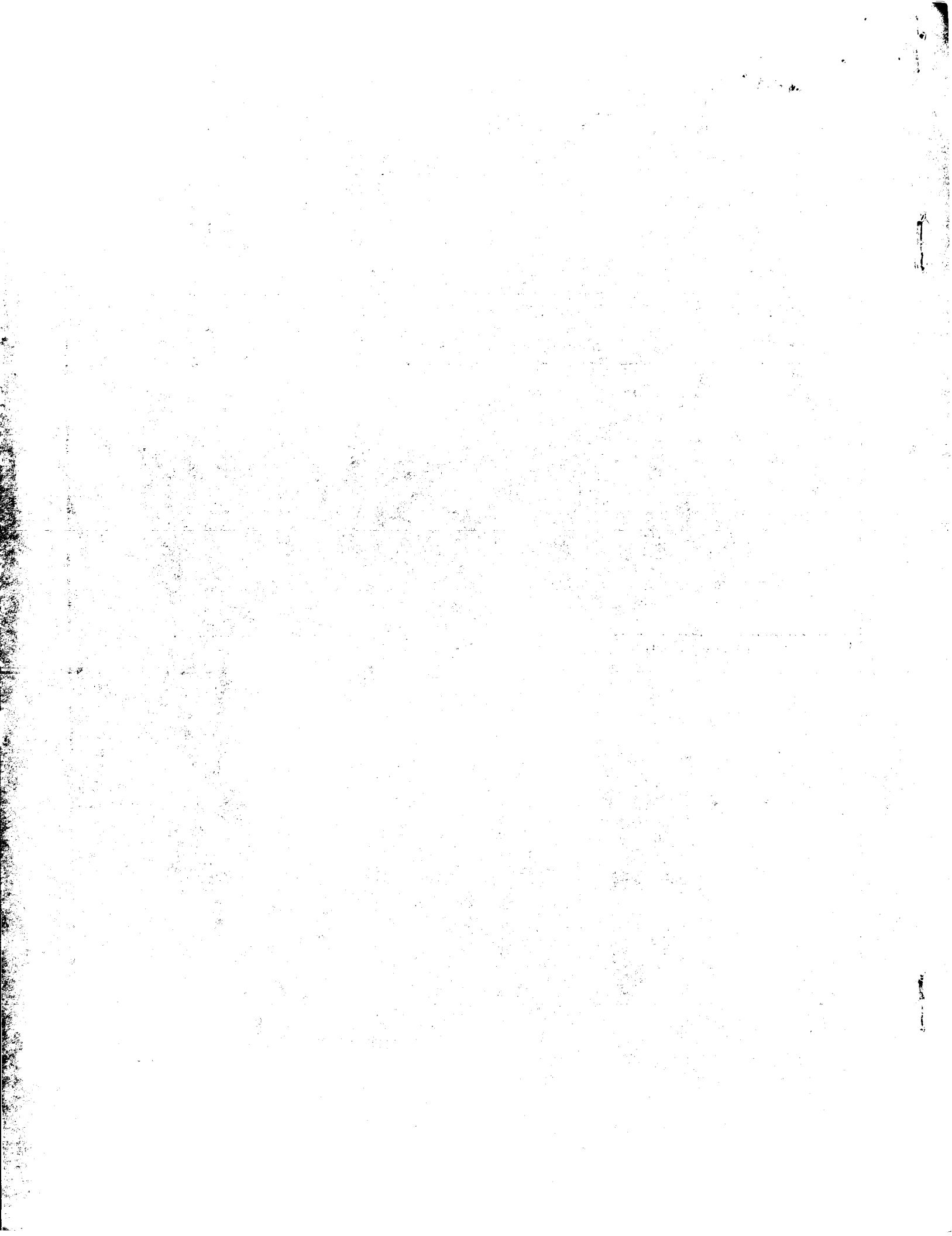
INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Inter. nationales Aktenzeichen

PCT/EP 99/10354

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie		Datum der Veröffentlichung
US 5808777 A	15-09-1998	US 5610756 A		11-03-1997
		US 5446576 A		29-08-1995
		US 5151824 A		29-09-1992
		EP 0496155 A		29-07-1992
		JP 4292232 A		16-10-1992
EP 0820901 A	28-01-1998	US 5823654 A		20-10-1998
WO 9531084 A	16-11-1995	AU 2612495 A		29-11-1995
JP 61059317 A	26-03-1986	KEINE		



Translation

PATENT COOPERATION TREATY

10

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MAG 98/19PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP99/10354	International filing date (day/month/year) 23 December 1999 (23.12.99)	Priority date (day/month/year) 29 December 1998 (29.12.98)
International Patent Classification (IPC) or national classification and IPC B60R 1/08, 1/06		
Applicant	MAGNA REFLEX HOLDING GMBH	

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
<input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
These annexes consist of a total of <u>2</u> sheets.
3. This report contains indications relating to the following items:
I <input checked="" type="checkbox"/> Basis of the report
II <input type="checkbox"/> Priority
III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV <input type="checkbox"/> Lack of unity of invention
V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI <input type="checkbox"/> Certain documents cited
VII <input checked="" type="checkbox"/> Certain defects in the international application
VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 20 April 2000 (20.04.00)	Date of completion of this report 29 March 2001 (29.03.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP99/10354

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

the international application as originally filed.

the description, pages 1-13, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____
pages _____, filed with the letter of _____

the claims, Nos. 5(In Part), 6-22, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-4, 5(In Part), filed with the letter of 21 March 2001 (21.03.2001)
Nos. _____, filed with the letter of _____

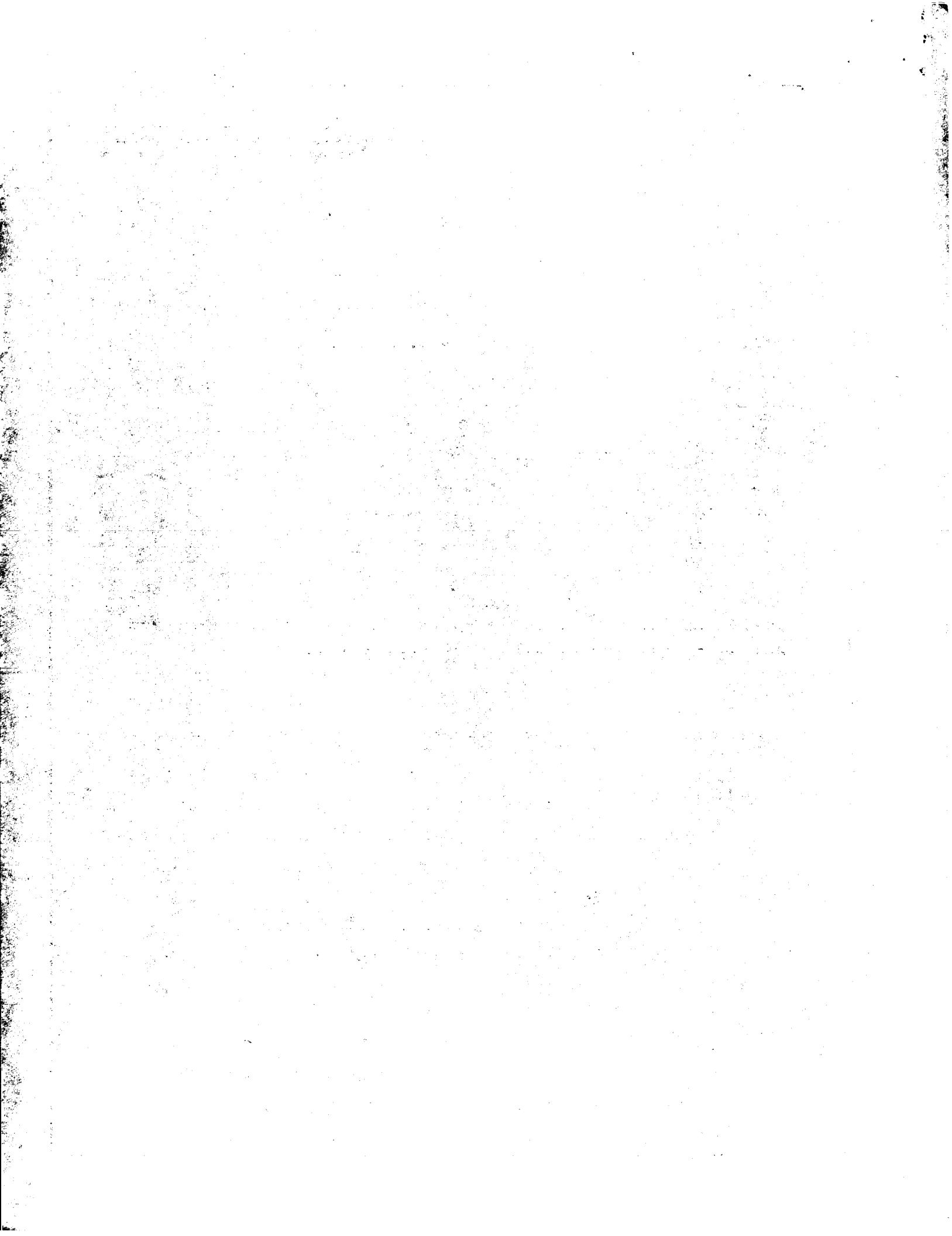
the drawings, sheets/fig 1/3-3/3, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____
sheets/fig _____, filed with the letter of _____

2. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, Nos. _____
 the drawings, sheets/fig _____

3. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 99/10354

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-22	YES
	Claims		NO
Inventive step (IS)	Claims	1-22	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

V.2.1 Independent Claim 1

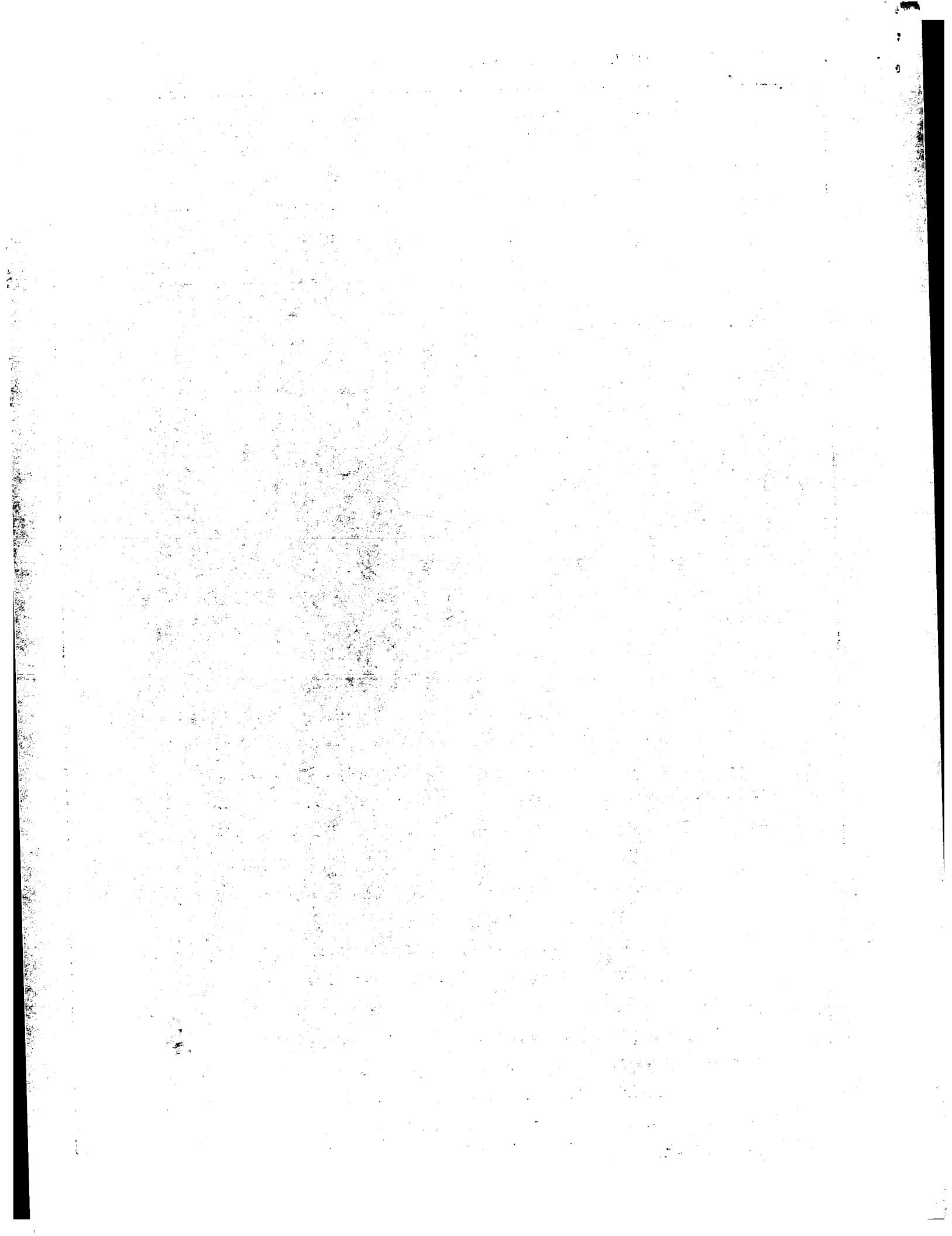
V.2.1.1. Novelty

US-A-5 808 777 (D1) shows (in Figures 2-7) and describes (in the abstract and column 2, lines 33-44, and line 48 to column 3, line 27, lines 54-59, column 4, lines 26-31 and column 5, line 53 to column 6, line 11) a:

- vehicle rearview system having at least one rearview mirror unit equipped with an electrochromic mirror (1, 10), and having a control arrangement (11, 60", 70) as well as a vehicle voltage supply device (V, V+, 12V), the control device (11, 60", 70) being electrically connected for its voltage supply to the vehicle voltage supply device (V, V+, 12V), to the electrochromic mirror (1, 10) for controlling its reflection characteristics as a function of a control voltage, and to an areal heating resistor (12, 36, 36', HTR1).

The subject of Claim 1 differs therefrom in that

- the flat heating resistor of the control device serves as a loss resistor for dissipating electrical power produced as heat during generation of the



control voltage.

Therefore the present application meets the requirements of PCT Article 33(2), because the subject of the claim is novel in relation to the prior art as defined in the Regulations (PCT Rule 64.1-64.3).

V.2.1.2 Inventive step

Proceeding from the cited prior art, the problem to be solved by the present invention can be regarded as that of generating a control voltage for a vehicle rearview mirror system in a suitable manner.

The solution according to Claim 1 appears, however, to be neither known as such from the documents cited in the proceedings nor to be rendered obvious by the prior art in general.

In the prior art, the control voltage of the electrochromic element, which makes up only a fraction of the conventional vehicle system voltage of a vehicle, is usually generated by electronic switching elements (transistors), for example by means of cycles of the vehicle system voltage. Energy loss in the form of heat is generated only at given points (in the transistors) and has to be dissipated via cooling devices.

On the other hand, (electrochromic) mirrors need an areal heater in order to remove frost and ice from the mirror or maintain the mirror in a frost- and ice-free state, and in order to maintain the electrochromic element at "operating temperature". To this end, the prior art (see for example D1) conventionally provides areal resistors that are configured to be connected directly to the vehicle



voltage. The use, according to the invention, of the areal resistor for generating the control voltage of the electrochromic element is not envisioned; the heat generated areally can advantageously be used directly to heat the mirror.

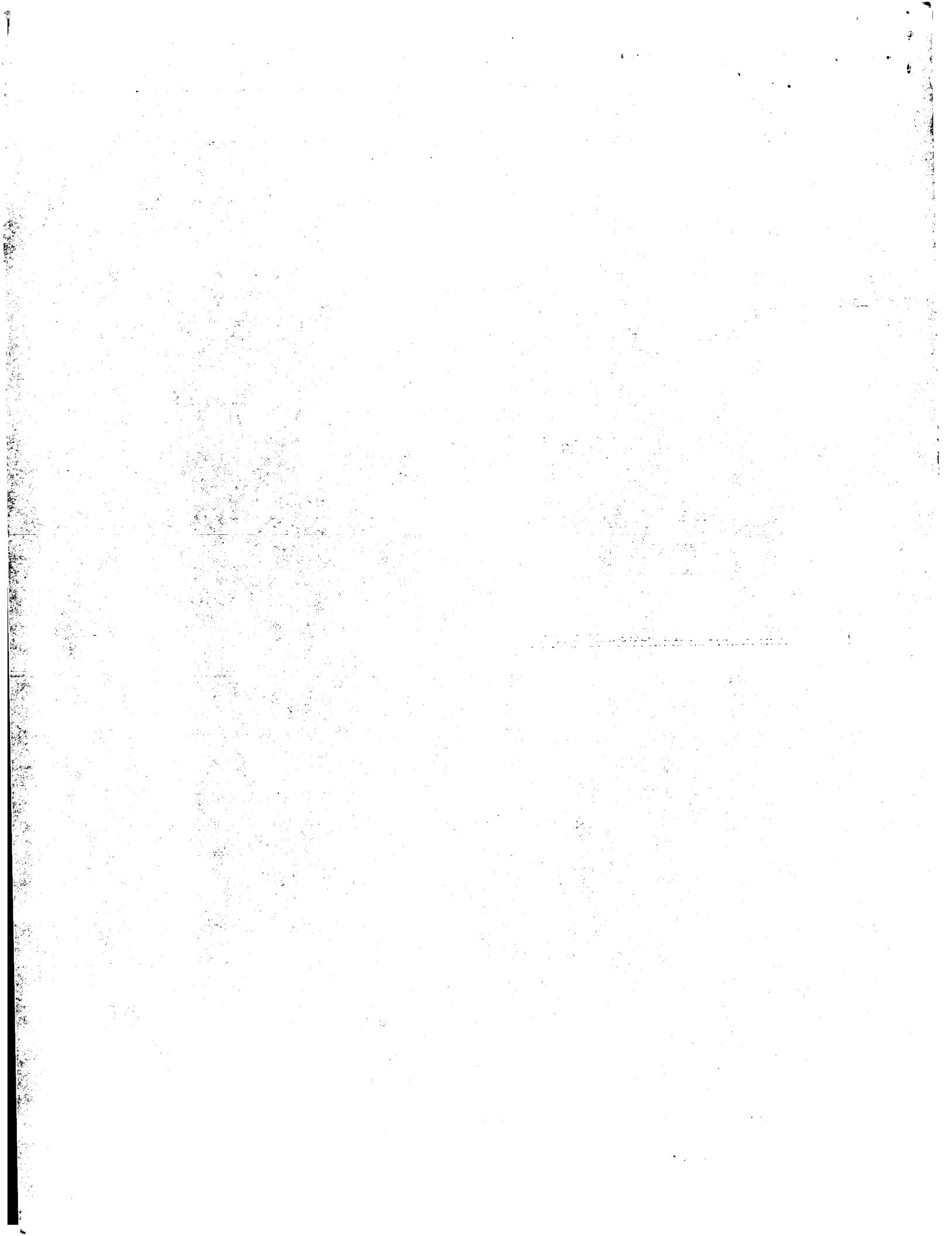
Therefore the present application appears to meet the requirement of PCT Article 33, because the subject of Claim 1 appears to involve an inventive step (PCT Rule 65.1 and 65.2).

V.2.1.3. Industrial applicability

The subject of Claim 1 appears likewise to meet the requirements of PCT Article 33(4) because it can be produced and used in the area of vehicle technology.

V.2.1.4. Claims 2-22, dependent on Claim 1

Dependent Claims 2-22, which concern further embodiments of the invention according to Claim 1, appear likewise to meet the requirements of PCT Article 33(2) to (4).



INTERNATIONAL PRELIMINARY EXAMINATION REPORTInternational application No.
PCT/EP 99/10354**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

VII.1 In the claims

In order to improve the clarity of the claims, all of the technical features indicated therein should have been followed by reference signs placed between parentheses (PCT Rule 6.2(b)), said features already being followed by such reference signs in the description and in the drawings (PCT Rule 11.13(1)). This applies equally to the preamble and the characterizing portion.

In Claim 1, line 22 there was a spelling error in the German text, which should read: "... entstehenden elektrischen Verlustleistung..."

VII. In the description

Contrary to the requirements of PCT Rule 5.1.(a)(ii), the description neither cites D1 nor discusses in brief the relevant prior art disclosed therein.

The applicant has not provided a source for the prior art indicated on pages 1-3 of the description (PCT Rule 5.1(a)(ii)).

